

What Is Claimed Is:

1. An electrical connection of flexible conductive strands in a flexible body wherein the flexible body has a first direction and a second direction and comprises:

5 a first flexible electrically conductive strand of material being disposed in the first direction;

a plurality of crossing flexible strands of material disposed in the second direction and crossing the first flexible electrically conductive strand of material, wherein at least one of said crossing flexible strands of material
10 comprises a crossing flexible electrically conductive strand of material; and,

a first pair of flexible locking strands of material disposed longitudinally adjacent to the first flexible electrically conductive strand of material and comprising a first flexible locking strand of material and a second flexible locking strand of material, wherein the first flexible locking strand of material is
15 disposed above the plurality of crossing flexible strands of material, wherein the second flexible locking strand of material is disposed below the plurality of crossing flexible strands of material, and wherein the second flexible locking strand of material crosses over the first flexible locking strand of material on each side of the crossing flexible electrically conductive strand of material.

20 2. The electrical connection of flexible conductive strands in a flexible body according to Claim 1, wherein the cross sectional areas of the first flexible locking strand of material and the second flexible locking strand of material are each less than the cross-sectional area of the first flexible electrically conductive strand of material.

25 3. The electrical connection of flexible conductive strands in a flexible body according to Claim 1, wherein the first flexible locking strand of material and the second flexible locking strand of material are each electrically conductive.

4. The electrical connection of flexible conductive strands in a flexible body according to Claim 3, wherein the first pair of flexible locking strands of material are in electrical contact with the first flexible electrically conductive strand of material.
- 5 5. The electrical connection of flexible conductive strands in a flexible body according to Claim 1, wherein the first flexible locking strand of material and the second flexible locking strand of material are each a core and sheath yarn, and wherein the sheath has a melting temperature below the melting temperature of the core.
- 10 6. The electrical connection of flexible conductive strands in a flexible body according to Claim 1, further includes an opposing pair of flexible locking strands of material disposed longitudinally adjacent to the first flexible electrically conductive strand of material opposite from the first pair of flexible locking strands of material and comprising a third flexible locking strand of material and a fourth flexible locking strand of material, wherein the third flexible locking strand of material is disposed above the plurality of crossing flexible strands of material, wherein the fourth flexible locking strand of material is disposed below the plurality of crossing flexible strands of material, and wherein the fourth flexible locking strand of material crosses over the third flexible locking strand of material on each side of the crossing flexible electrically conductive strand of material.
- 15 7. The electrical connection of flexible conductive strands in a flexible body according to Claim 6, wherein the cross sectional areas of the third flexible locking strand of material and the fourth flexible locking strand of material are each less than the cross-sectional area of the first flexible electrically conductive strand of material.
- 20 8. The electrical connection of flexible conductive strands in a flexible body according to Claim 6, wherein the third flexible locking strand of material
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and the fourth flexible locking strand of material are each electrically conductive.

9. The electrical connection of flexible conductive strands in a flexible body according to Claim 8, wherein the opposing pair of flexible locking
5 strands of material are in electrical contact with the first flexible electrically conductive strand of material.

10. The electrical connection of flexible conductive strands in a flexible body according to Claim 6, wherein the first flexible locking strand of material and the second flexible locking strand of material are each a core and sheath
10 yarn, and wherein the sheath has a melting temperature below the melting temperature of the core.

11. An electrical connection of flexible conductive strands in a flexible body wherein the flexible body has a first direction and a second direction and comprises:

15 a first flexible electrically conductive strand of material disposed in the first direction;

a second flexible electrically conductive strand of material disposed longitudinally adjacent to the first flexible electrically conductive strand of material;

20 a plurality of crossing flexible strands of material disposed in the second direction below the first flexible electrically conductive strand of material and above the second flexible electrically conductive strand of material, wherein at least one of said crossing flexible strands of material comprises a crossing flexible electrically conductive strand of material; and,

25 wherein the second flexible electrically conductive strand of material crosses over first flexible electrically conductive strand of material on each side of the crossing flexible electrically conductive strand of material.

12. An electrical connection of flexible conductive strands in a flexible body wherein the flexible body has a first direction and a second direction and comprises:

5 a first flexible electrically conductive strand of material being disposed in the first direction;

a second flexible electrically conductive strand of material being disposed in the first direction;

10 a plurality of crossing flexible strands of material disposed in the second direction and crossing the first flexible electrically conductive strand of material and the first flexible electrically conductive strand of material, wherein at least one of said crossing flexible strands of material comprises a crossing flexible electrically conductive strand of material;

15 a first pair of flexible locking strands of material disposed longitudinally adjacent to the first flexible electrically conductive strand of material and comprising a first flexible locking strand of material and a second flexible locking strand of material, wherein the first flexible locking strand of material is disposed above the plurality of crossing flexible strands of material, wherein the second flexible locking strand of material is disposed below the plurality of crossing flexible strands of material, and wherein the second flexible locking strand of material crosses over the first flexible locking strand of material on each side of the crossing flexible electrically conductive strand of material; and,

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25 an opposing pair of flexible locking strands of material disposed longitudinally adjacent to the second flexible electrically conductive strand of material opposite from the first flexible electrically conductive strand and comprising a third flexible locking strand of material and a fourth flexible locking strand of material, wherein the third flexible locking strand of material is disposed above the plurality of crossing flexible strands of material, wherein the fourth flexible locking strand of material is disposed below the plurality of crossing flexible strands of material, and wherein the fourth flexible locking

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strand of material crosses over the third flexible locking strand of material on each side of the crossing flexible electrically conductive strand of material

5 13. The electrical connection of flexible conductive strands in a flexible body according to Claim 12, wherein the cross sectional areas of the first flexible locking strand of material and the second flexible locking strand of material are each less than the cross-sectional area of the first flexible electrically conductive strand of material.

10 14. The electrical connection of flexible conductive strands in a flexible body according to Claim 13, wherein the cross sectional areas of the third flexible locking strand of material and the fourth flexible locking strand of material are each less than the cross-sectional area of the second flexible electrically conductive strand of material.

15 15. The electrical connection of flexible conductive strands in a flexible body according to Claim 12, wherein the first flexible locking strand of material and the second flexible locking strand of material are each electrically conductive.

20 16. The electrical connection of flexible conductive strands in a flexible body according to Claim 15, wherein the first pair of flexible locking strands of material are in electrical contact with the first flexible electrically conductive strand of material.

 17. The electrical connection of flexible conductive strands in a flexible body according to Claim 15, wherein the third flexible locking strand of material and the fourth flexible locking strand of material are each electrically conductive.

25 18. The electrical connection of flexible conductive strands in a flexible body according to Claim 17, wherein the opposing pair of flexible locking strands of material are in electrical contact with the second flexible electrically conductive strand of material.

19. The electrical connection of flexible conductive strands in a flexible body according to Claim 12, wherein the first flexible locking strand of material and the second flexible locking strand of material are each a core and sheath yarn, and wherein the sheath has a melting temperature below the melting
5 temperature of the core.

20. The electrical connection of flexible conductive strands in a flexible body according to Claim 19, wherein the third flexible locking strand of material and the fourth flexible locking strand of material are each a core and sheath yarn, and wherein the sheath has a melting temperature below the
10 melting temperature of the core.